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ABSTRACT

An in-vacuum radiation exposure shutter device can be employed to regulate a large footprint light beam. The shutter device includes (a) a source of radiation that generates an energy beam; (2) a shutter that includes (i) a frame defining an aperture toward which the energy beam is directed and (ii) a plurality of blades that are secured to the frame; and (3) device that rotates the shutter to cause the plurality of blades to intercept or allow the energy beam to travel through the aperture. Each blade can have a substantially planar surface and the plurality of blades are secured to the frame such that the planar surfaces of the plurality of blades are substantially parallel to each other. The shutter device is particularly suited for operation in a vacuum environment and can achieve shuttering speeds from about 0.1 second to 0.001 second or faster.